Questions / Issues for DEQ presentation November 18th

1. Are current regulatory requirements for the operation of waste facilities in the state adequate to provide effective management of state environmental concerns and safeguard public health and quality of life?

Yes, the current framework is adequate. Typically we adopt equivalent regulations to the federal programs to maintain primacy for the waste programs. If there is a determination that there is a need to be more stringent, there is a process described in both statutes that allows such to occur upon findings by the respective DEQ Board.

2. Is there opportunity for improvement in the current regulatory requirements?

The answer is yes. At any time, there are usually efforts underway to modify or improve statutes, rules, or processes relating to the waste programs on the national level. As an example, recently the National Academy of Sciences released a report detailing a study of low-activity radioactive waste. The Academy confirmed what we already know, that the radioactive waste classification system needs improvement. Since the system was put in place in a patchwork manner based on the origin of the wastes (uranium mill tailings), all waste is not consistently regulated and it is a system that everyone from regulator to the public struggles to understand. Utah testified before the Academy discussions relating to the issue and provided perspective regarding the classification system. We also participate through various national organizations that review waste regulatory issues and make recommendations to our national partners such as EPA and NRC on ways to improve the regulatory definitions and processes.

We have provided details about both the DRC and DSHW permitting processes for commercial radioactive waste facilities, nonhazardous solid waste landfills, and commercial hazardous waste landfills and incinerators:
http://www.deq.state.ut.us/EQOAS/task_force/17-1.pdf,
http://www.deq.state.ut.us/EQOAS/task_force/17-2.pdf,
http://www.deq.state.ut.us/EQOAS/task_force/17-3.pdf

3. Is DEQ following and enforcing current regulatory requirements through effective oversight and monitoring of waste facilities?

Yes, we believe there is effective oversight and monitoring of waste facilities DEQ has staff within the Division of Solid and Hazardous Waste and Division of Radiation Control dedicated to the oversight of commercial waste facilities. The DEQ staff includes a variety of scientific disciplines from health physicists to civil or chemical engineers to groundwater hydrologists to environmental scientists. In addition, funding from disposal fees provides monies for the oversight of all solid and hazardous waste facilities in the State of Utah.

We have provided the Task Force information regarding oversight of commercial facilities in Tab 7:
Tab 7.1 Grassy Mountain at: http://www.deq.state.ut.us/EQOAS/task_force/7.1.pdf
Tab 7.2 Envirocare Mixed Waste at: http://www.deq.state.ut.us/EQOAS/task_force/7.2.pdf,
Tab 7.3 Envirocare Oversight at: http://www.deq.state.ut.us/EQOAS/task_force/7.3.pdf
Tab 7.4 ECDC Oversight at: http://www.deq.state.ut.us/EQOAS/task_force/7.4.pdf
Tab 7.5 Aragonite Oversight at: http://www.deq.state.ut.us/EQOAS/task_force/7.5.pdf
Tab 7.6 White Mesa Mill Oversight at http://www.deq.state.ut.us/EQOAS/task_force/7.6.pdf
Oversight information provided includes staffing, the routine inspection program, special investigation activities, enforcement activities, other facility inspections activities, and the permitting process.

We have provided the Task Force in Tab 6 of the DEQ initial response information regarding some of the oversight issues that have been raised during public comment.

- Full-time inspectors – In our summary, we stated that DEQ does not recommend continuous, full-time onsite inspectors for current operations. If an increased oversight role or presence is desired, the costs and benefits of such additional oversight should be evaluated. Tab 6-1 compares the current Envirocare oversight with oversight at the Barnwell and Richland facilities (http://www.deq.state.ut.us/EQOAS/task_force/6.1.pdf). It also points out that NRC recommends an "annual inspection frequency" for low-level waste facilities.

- Groundwater sampling – addressed in Tab 6-2, we will discuss this later.

- Are volumes/tonnage of low-level radioactive waste being reported and tracked – There are established procedures for reporting, tracking, and auditing volumes/tonnages of LLRW that enable reports to be reviewed and reconciled and audits to identify any discrepancies that require adjustments in fee schedules. Information is provided to address that issue.

4. Are existing regulations adequate for the safe transportation of radioactive waste currently being received in the state?

The existing regulations for transportation of hazardous and radioactive waste are found in the Federal Department of Transportation regulations. Wastes are a subset of "hazardous materials" which involve everything from gasoline to commercial chemical products to waste. Waste typically is a very small percentage of the hazardous materials transported everyday on the highways. In Tab 16, there is information relating to the transportation of all types of radioactive waste including low-level radioactive waste (http://www.deq.state.ut.us/EQOAS/task_force/16.pdf).

The state of Utah works closely with the Western Governor's Association to ensure the safe and uneventful transport of radioactive waste. Utah participates in the

Western Interstate Energy Board which will examine spent fuel transportation issues to Yucca Mountain and the WIPP Technical Advisory Group which has been examining the safe transport of transuranic wastes to the WIPP site in Carlsbad, New Mexico for several years. In 2001, the Utah legislature granted the authority to the Department to require "generator site access permits" for companies desiring to ship radioactive waste to Envirocare. In 2003 to date, 150 different shippers have sent 4013 truck shipments and 11,115 railcars containing waste for disposal. DRC inspectors were on-site 185/250 work days (74%) and have conducted 374 inspections of inbound waste so far in 2003. 12% of the 2003 shipments have been identified as having a transportation violation or deficiency. In the event a company is an egregious performer in terms of transportation, the site access permit can be suspended or revoked. This program was based on similar programs in both South Carolina and Washington. This regulatory program provides us with additional assurance that wastes coming to Envirocare are being properly transported.

5. Are there additional regulatory actions DEQ would want to take if additional resources were available? If so, please describe those actions and additional resources needed.

As previously mentioned, DEQ believes a sufficient regulatory program has been established for monitoring of facilities. Support to this regulatory program comes from various fees that are deposited into the Environmental Quality Restricted Account. There is an overall concern about the health of the Environmental Quality Restricted Account. During the 2003 Legislative Session, fees were increased on radioactive waste and treated hazardous waste and fees were initiated on construction and demolition waste and an annual fee beginning in January 2004 was placed on solid waste landfills. The purpose of the increase in fees was to address shortfalls into the fund of approximately $1 million. If the fees are removed from treated hazardous waste, 1/3 of the fix will be removed. Whatever fee changes are being proposed need to be revenue neutral. This may require that the loss in fees be offset in another manner. For example, currently $500,000 of disposal fees goes directly to the General Fund as free revenue. Reducing this contribution to $200,000 might be a means to make a decrease in fees for treated hazardous waste "revenue neutral."

Additional resources would be needed to implement any potential changes to the existing regulatory framework as a result of policy decisions including:

increased monitoring (full-time inspectors)
additional split groundwater sampling
additional audits of fee payments
additional staff needed if Envirocare is allowed to accept Class B and C low-level radioactive waste (See Tab 8-2) (http://www.deq.state.ut.us/EQOAS/task_force/8.2.pdf).

6. Are waste facilities regulated by DEQ in substantial compliance with DEQ regulatory requirements? If not, which facilities are not in substantial compliance and why? Indicate what, if any, facilities have been out of substantial compliance in the past and what action was taken.

It is not unusual for enforcement actions to occur at commercial waste facilities. Some enforcement actions are more serious than others. Waste facilities are in substantial compliance with DEQ regulatory requirements. Substantial compliance means that the noncompliance has or is being resolved and that resultant penalties are also moving towards resolution. In instances of noncompliance, enforcement actions are considered.

There are several enforcement tools that can be used including warning letters, notices of violation, and orders. Enforcement actions are intended to bring the facility back into immediate compliance. In the event the corrective actions will take an extended time to bring the facility back into compliance, a consent agreement is used to facilitate a time frame for compliance to occur. Enforcement actions may include civil penalties based on the penalty policies of each Division. Enforcement actions by the Divisions can be appealed to the respective Board. All collected civil penalties are deposited into the General Fund.

On occasion, either division may receive information regarding allegations of misconduct by a facility. Receipt of such allegations triggers a defined process to investigate, confirm the allegations and take any necessary enforcement actions. These types of special investigations are typically not publicly available to protect the identity of those making the allegations.

Both Divisions maintain compliance histories for commercial radioactive and hazardous waste facilities. This provides information on all past enforcement actions. The compliance history for the Clean Harbors Aragonite incinerator was provided in Tab 15 (http://www.deq.state.ut.us/EQOAS/task_force/15.pdf).

7. Briefly describe the regulatory history of waste disposal in Utah summarizing major changes that have occurred leading up to current regulations.

In the late 1980s, DEQ was inundated with applications for commercial hazardous waste facilities, mostly incinerators. As a result, several actions were taken in relation to waste policy for new facilities:

- # The five-step approval process was put into effect for new commercial waste facilities, which included:
  - , Siting requirements (including the 5-mile rule)
  - , Technical review (DEQ)
  - , Local planning and zoning approval

, Legislative approval
, Gubernatorial approval

The policy was intended to discourage but not make it impossible for new facilities to be permitted or licensed. The governor/legislative approval for hazardous waste facilities was placed into law in 1989 and the governor/legislative approval for nonhazardous solid waste disposal facilities was placed into law in 1990.
Four facilities in the permitting process at the time were grandfathered from the 5-step approval process including the Grassy Mountain hazardous waste landfill, the Aragonite incinerator, Envirocare, ECDC, and the Clive incinerator. This was accomplished by specifying that such grandfathered facilities must have submitted an application by a certain date and completed specified actions by a certain date. For these facilities, steps were identified that if they chose to expand it would constitute a "new application" subject to legislative and gubernatorial approval:

Expansion beyond the current facility boundary
Expansion representing a significant increase in physical facilities or throughput (for incineration facilities)
In 1994, expansion to accept B and C low-level waste was added

In 1994, the Division of Radiation Control initiated rulemaking that stipulated the availability of public comment regarding major licensing actions at certain facilities, including Envirocare. Major and minor modifications to the license were defined using the hazardous waste program as a template. Rulemaking was also initiated to formulate procedures for appeals of licenses and/or enforcement actions to the Radiation Control Board.

8. Describe groundwater monitoring at waste facilities. Are current practices adequate? How do DEQ's requirements and practices at Envirocare compare with those in South Carolina and Washington?

Groundwater sampling was described in Tab 6-2 of DEQ's initial submission: (http://www.deq.state.ut.us/EQOAS/task_force/6.2.pdf).
Licenses and permits for commercial waste facilities (solid, hazardous, and radioactive waste) require the licensee or permittee to establish a groundwater monitoring network, periodically collect groundwater samples, have the samples analyzed by a qualified laboratory, and submit results to the appropriate regulatory agency. The licensee/permittee is required to review the sampling results and is required to notify the regulatory agency if certain conditions exist (a parameter has exceeded the regulatory standards). The regulatory agency monitors the results in the reports, evaluating whether the results exceed appropriate regulatory standards or whether trends are developing that might result in a problem in the future.

The groundwater program is permitted and inspected. For example, during an inspection, DEQ personnel will accompany the sampling crew and make observations and may collect split samples which will be sent to the state health laboratory or a contract laboratory to verify the data.

Groundwater monitoring programs at the radioactive waste facilities in Barnwell, South Carolina and Richland, Washington operate similarly. However, in the case of Barnwell, there is an ongoing corrective action program regarding tritium and Carbon-14 in the groundwater below the Barnwell site. In the case of Richland, there is groundwater contamination from activities on the existing Department of Energy site that is approaching the Richland facility. Information on these facilities and releases is found at:
Barnwell: (http://www.deq.state.ut.us/EQOAS/task_force/11.5.pdf).
Richland: (http://www.deq.state.ut.us/EQOAS/task_force/11.6.pdf).

Both facilities collect split samples on a periodic basis. Typically a percentage of the wells are split sampled during every sample period. Groundwater at the landfill sites in the West Desert (Envirocare and Grassy Mountain) is viewed as a potential future drinking water resource even though the groundwater at these facilities is very saline.

9. Discuss the application of a public service commission model to the regulation of Envirocare.

The role of a public service commission regarding waste disposal fulfills the need for setting of disposal rates and profit margins at facilities owned or leased by states. The State of South Carolina is the owner of the Barnwell low-level waste site. The State of Washington leases the Hanford low-level waste site from the federal government. In Utah, the site is privately owned by Envirocare. In both instances of state ownership or lease, operators "run" the site, US Ecology at Hanford and Duratek/Chem Nuclear in South Carolina.

The disposal rates for these facilities are set by "public service commission-like entities." The disposal rates do include recovery of monies that eventually benefit the local community and the state. The rate schedules are published and available for public review. Since Envirocare is privately owned, they set the disposal rates themselves and information on disposal rates is not publicly available.

Fees are also collected that support the regulatory process, fund closure, post-closure and perpetual care, and provide for local government mitigation. "Rate regulation" and the regulatory scheme is a separate process from the inspection of the facilities to ensure health and safety. In South Carolina, the Department of Health and Environmental Conservation (DHEC) performs this role separately. In Washington, both the Washington Department of Health and the Department of Ecology have roles in regulating the site to ensure health and safety.

10. What specific statutory changes related to waste disposal does DEQ recommend for the 2004 General Session?

At the request of the task force, the Department reviewed all applicable statutes relating to waste policy:

The most important statutory issue needing to be resolved as referenced in Tab 8-1 (http://www.deq.state.ut.us/EQOAS/task_force/8.1.pdf) relates to the future ownership of the Envirocare site. Envirocare is responsible for closure of the facility and post-closure monitoring and maintenance for 100 years following closure. Following post-closure, there is currently no responsibility assigned for continued monitoring and or maintenance of the site. The expectation is that commercial radioactive waste sites will be cared for in perpetuity.

The responsibility for this perpetual care will fall to the state or federal government because Envirocare is not required to fulfill this responsibility and the expectation is that a private owner/operator would not have incentive to do so. The rules were based on the idea that government institutions will always exist. Consideration should also be given to a situation where Envirocare, for any reason, defaults on their responsibility during the post-closure care period.

As part of the approvals for the license for Envirocare to accept Class B and C low-level radioactive waste, conditions were placed on the land ownership exemption approval and the Envirocare Class B and C radioactive materials license that the approval was "contingent on approval by the Utah Legislature providing proper authority for the State of Utah to take ownership of the site and provide funding for perpetual care of the site after 100 years".

Other recommended changes include as stated in Tab 8-2:
Additional funding for staff for B/C waste oversight if B/C waste is authorized by the Legislature/Governor. (http://www.deq.state.ut.us/EQOAS/task_force/8.2.pdf)

Tab 8-3 discusses options regarding providing for review of new facilities in the Radiation Control Act and the Solid and Hazardous Waste Act.
(http://www.deq.state.ut.us/EQOAS/task_force/8.3.pdf)

Tab 8-4 discusses the need for a minor change to clarify what is meant by a major modification to a facility that would trigger the "new application" revisions in the Radiation Control Act. (http://www.deq.state.ut.us/EQOAS/task_force/8.4.pdf)

Tab 8-5 and Tab 8-6 discuss whether or not there needs to be consistency between certain provisions in the Radiation Control Act and the Solid and Hazardous Waste Act relating to a "needs" analysis and funding for reviews of applications
(http://www.deq.state.ut.us/EQOAS/task_force/8.5.pdf),
(http://www.deq.state.ut.us/EQOAS/task_force/8.6.pdf).

11. Besides Envirocare, what other applications to dispose of radioactive waste are currently before DEQ and what is the current status of the application? What applications have been received in the past? What was the outcome?

In January of 2003, Cedar Mountain Environmental Inc. submitted a siting application to the Division of Radiation Control. This is required as a first step in the licensing process.

The siting application process has been underway and currently the status is that Cedar Mountain Environmental is in the final steps of providing responses that may satisfy needed technical information to allow the process to move to the next steps.

The next steps are that a draft siting evaluation report will be prepared by the Division of Radiation Control and be made available for public comment. The report will detail whether or not Cedar Mountain meets the siting criteria. Once the public comment period concludes and responses are reviewed and considered, the Executive Secretary of the Radiation Control Board will make a final decision as to whether Cedar Mountain has met the siting criteria. The next step then for Cedar Mountain would be to file a license application for review.

Concurrently, Cedar Mountain Environmental, as another step in the process, has been attempting to obtain local zoning and planning approval from Tooele County. The Tooele County Planning Commission turned down a request from Cedar Mountain for a conditional use permit by a vote of 7-1. This action will be appealed to the full Tooele County Commission and their decision will constitute a final action regarding the local planning and zoning approval.

There has been one other submission of an application to receive low-level radioactive waste. Laidlaw (now Clean Harbors) announced on April 24, 1997 its intent to seek a license to dispose of low-level radioactive waste at its Grassy Mountain hazardous waste facility. The plan involved conversion of an existing unused industrial waste landfill.

A siting application was submitted on June 9, 1997. The siting application process was deemed complete on January 26, 1998. Public comment and hearings followed and the siting application was approved on March 30, 1998.

In December 1997, the Tooele County Planning Commission turned down a request from Laidlaw for a change to the Grassy Mountain conditional use permit by a vote of 4-0 with one abstention. Laidlaw indicated they would appeal to the full Tooele County Commission but this never occurred and the process concluded.

12. Describe the current status and issues surrounding the proposed disposal of the Fernald uranium mill tailings in Utah.

- **Waste Description**
  - Uranium Mill Tailings from the extraction of uranium from ore mined in the Congo region of Africa. Exceptionally "high grade" ore.
    - "Congo" Ore grade: 60% to 75% uranium.
    - Colorado Plateau ore grade: less than 5% uranium.
  - Approximately 8,000 cubic yards of tailings
  - Radium-226 concentration in tailings averages 477,000 pCi/gram.
  - Waste will be stabilized with fly ash, polymers, Portland Cement, and water. This down-blending will yield approximately 45,000 cubic yards of waste.
  - Average radium-226 concentration of down blended waste will be less than 100,000 pCi/gram. (radium-226 half-life is 1600 years)
  - Packaged in 6 foot diameter by 6.5 feet high carbon steel cylinders
  - Package volume is 196 cubic feet and weighs approximately 20,450 pounds.
  - Containers will meet Federal DOT requirements for Industrial Package Type 2
  - Approximately 7500 containers required.

- **Pedigree**
  - Meets definition of uranium mill tailings: "tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its Source material content
  - Ore processed before 1978, therefore not regulated by the Nuclear Regulatory Commission (NRC) under UMTRCA of 1978. NRC jurisdiction for post 1978 uranium mill tailings
  - Proposed Congressional action would define the Silo wastes as 11(e)2. Uranium mill tailings and permit regulation by the NRC or Agreement State.

  <u>Proposed Federal Legislation</u>:

  "Notwithstanding any other provision of law, the material in the concrete silos at the Fernald uranium processing facility currently managed by the Department of Energy shall be considered "byproduct material" as defined by section 11e.(2) of the Atomic Energy Act of 1954, as amended (42U.S.C. 2014(e)(2)). The Nuclear Regulatory Commission or an Agreement State, as appropriate, shall regulate the material as "11e.(2) by-product material" in the event that the Department of Energy proposes to dispose of the material in an NRC-regulated or Agreement State-regulated facility." There is similar language in another Congressional bill.

- **Envirocare's Proposal**
  - Currently licensed by the NRC for commercial disposal of 11(e)2. uranium mill tailings
  - License authorizes radium-226 concentrations not greater than 4000 pCi/gram.
  - Envirorcare has an Amendment request to the NRC which would authorize disposal of packaged 11(e)2. tailings less than 100,000 pCi/gram of Radium-226.

- Disposal would occur over a 2 year period beginning in 2005.

- **Primary Technical Issues Presented to the NRC**
  - Engineering Stability
    - –Back filling around containers
    - –Loading stress from stacking containers
    - –Differential settlement leading to disposal earthen cover failure
  - Radon Diffusion from disposed waste. Meet EPA regulation after closure
  - Transportation Risk Assessment
    - –Modes: Rail only, truck only, rail and truck
    - –13 routes evaluated
    - –Analysis includes accident free transport and accident analysis.
  - Dose Control to Workers
    - –During Off-Loading, transport to disposal cell and disposal. Evaluated doses during routine operations and accident conditions.

- **Primary Technical Issue for DRC Review**
  - The NRC does not require predictive modeling of potential impacts to ground water for 11e(2) uranium mill tailings disposal. Current GWDP requires predictive modeling for non-radiologic constituents. Permit modification is required.
  - Envirocare must demonstrate that Water Quality Standards must not be exceeded for metals and organics (non-radiologic contaminants) for a minimum of 200 years.

- **Regulatory Issue**
  - If the Fernald Silo uranium mill tailings were subject to Utah Radiation Control Rule R313-15-1008, "Classification and Characteristics of Radioactive Waste", the wastes would not be acceptable for disposal at Envirocare because the Class A disposal limit is 10,000 pCi/gram

13. What monitoring or oversight of DEQ, related to waste disposal regulation, takes place by federal regulatory agencies? Have reports been prepared evaluating DEQ?

The Nuclear Regulatory Commission evaluates the Radiation Control program, including the low-level waste portion on a routine basis. The Integrated Materials Performance Evaluation Program (IMPEP) consists of a team review of the program. The team is comprised of a team leader (usually from a different NRC Region or a Headquarters person), several NRC technical staff from the NRC Regions or Headquarters, and a state radiation control program person. This team evaluates the program in the areas of licensing, inspection, staff training, statutory authority and rules, allegations, incidents response and investigation. Division inspectors are accompanied and evaluated on inspections of various facilities. Once the team completes it's finding, a draft report is prepared and forwarded to the NRC

Management Review Board. The Management Review Board is comprised of senior NRC staff and a state liaison. The Board makes a final decision on the team's findings.

The team evaluates each program element or sub-element and assigns a score of satisfactory, satisfactory but needs improvement, or unsatisfactory. An evaluation is also accomplished on rulemaking to assure the state has adopted equivalent federal rules within the 3-year timeframe established by NRC. The highest rating that can be received for program elements is satisfactory. The highest overall rating is adequate and compatible.

The Utah Radiation Control program was periodically evaluated last by the NRC in June 2003. The final report was just issued which indicated that all program elements were satisfactory and the program is adequate and compatible. The next review of the program, because of the rating, will be scheduled in 4 years or during 2007. Once the final report is available electronically from the NRC, DEQ will post the report.

The Utah Solid and Hazardous Waste program receives an annual evaluation by staff of EPA Region VIII. EPA has some direct oversight responsibility in Utah (PCB program). Staff from EPA Region VIII periodically accompanies DEQ inspectors on routine inspections.